DEPARTMENT OF THE NAVY
NAVAL AIR STATION, WHIDBEY ISLAND
OAK HARBOR, WASHINGTON 98278-5000

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NASWHIDBEY INSTRUCTION 5100.27C CHANGE TRANSMITTAL 4

Subj: OCCUPATIONAL SAFETY AND HEALTH MANUAL

Encl: (1) Revised pages 11-1 through 11-15

1. Purpose. To revise the Confined Space Entry Program at Naval Air Station, Whidbey Island.

2. Action. Remove pages 11-1 through 11-15 from the basic directive and replace with the revised pages forwarded as enclosure (1) herewith.

/s/
T. E. GLENN
By direction

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CHAPTER 11
CONFINED SPACE ENTRY PROGRAM

1. References. References appear at the end of this chapter.

2. Purpose. To define the procedures and responsibilities for Confined Space Entry within NAS Whidbey Island.

3. Scope. This section applies to all facilities where NASWI employees must enter into and work around confined spaces, such as boilers, pits, wells, tanks, manholes, manway accesses, lift stations, vaults and other spaces which are poorly ventilated with limited access.

4. Discussion

a. Confined space is defined as a space that:

(1) Is large enough and so configured that an employee can bodily enter and perform work.

(2) Has limited or restricted means for entry and exit (for example tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry).

(3) Is not designed for continuous employee occupancy.

b. Permit-required confined space (PRCS) is defined as a confined space that has one or more of the following characteristics:

(1) Contains or has the potential to contain a hazardous atmosphere.

(2) Contains a material that has the potential for engulfing an entrant.

(3) Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section, or

(4) Contains any other recognized serious safety or health hazard. Personnel entering such spaces may encounter a variety of hazards, including:

(a) Lack of sufficient oxygen.

(b) Excessive oxygen which increases the danger of fire or explosion.

(c) Presence of flammable or explosive atmospheres or materials.

(d) Presence of toxic atmospheres or materials.

(e) Physical hazards such as slippery surfaces, electrical conduits, protruding objects, unstable ladders, machinery or electrical equipment which require a lockout and tagout.

(f) Entrapment or engulfment.

(g) Poor illumination. (D

NOTE: All PRCS shall be considered potentially hazardous and entry into or work in the boundaries of such spaces is prohibited until the space has been evaluated by the Confined Space Program Manager (CSPM) or Assistant Confined Space Program Manager (ACSPM) to establish appropriate safety precautions utilizing Appendix 1.

NOTE: In the event vermin, rats, snakes, Hantavirus, etc., are encountered, the confined space shall be considered a PRCS. (A

c. Non-Permit Required Confined Space is defined as a confined space that does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm.

NOTE: Bringing hazardous materials (HAZMAT) into a non-permit confined space could change the designation to PRCS. Such HAZMAT includes but is not limited to paints, solvents, welding rods, welding gases, and oxygen depleting substances like freons, etc.

d. A list of confined spaces at the Naval Air Station Whidbey Island and their respective hazards is available at the NAS Safety Office (NAS N45) and Public Works (NAS N46).

5. Responsibilities

a. The Commanding Officer (NAS N00) has overall responsibility for the Confined Space Entry Program. To assist in fulfillment of these responsibilities, the Commanding Officer shall appoint, in writing, a qualified CSPM. The CSPM shall have direct access to the Commanding Officer for issues related to Confined Space Entry.

b. The Confined Space Program Manager (CSPM) is responsible for:

(1) Implementing the Confined Space Entry program per references (a) through (g). (R

(2) Training all personnel involved in Confined Space Entry.

(3) Developing and implementing procedures for testing and monitoring confined spaces, working in confined spaces, and performing hot work on closed structures such as pipes, drums, tubes, fuel cells and similar vessels.

(4) Identifying and maintaining a current inventory of confined spaces at the facility.

(5) Ensuring an annual evaluation of the confined space program is conducted.

(6) Appointing, in writing, Qualified Persons (QPs) to perform testing for confined space entry. Ensure that the QPs are properly trained and the training is documented.

(7) Ensure the command is made aware of the types of monitoring equipment needed to be available to adequately perform the duties of the CSPM and the requirements for calibration and repair of the equipment on hand.

(8) Ensuring confined space entry permits and equipment calibration records are retained on site for at least one year.

c. Assistant Confined Space Program Manager (ACSPM) shall:

(1) Be appointed in writing by the Commanding Officer.

(2) Have full authority in the absence of the CSPM.

(3) Be responsible for implementation of the Confined Space Entry program per references (a) through (g). (R

d. Department Heads shall ensure:

(1) Confined spaces under their control are identified and properly evaluated by the CSPM/ACSPM or QPs prior to commencement of operations within the space utilizing Appendix 2 of this chapter.

(2) The requirements of this instruction are fully met.

e. Supervisory Personnel shall be familiar with the provisions of this chapter as they relate to personnel or operations under their supervisory control. They shall act positively to eliminate any potential hazards existing in operations under their control and shall:

(1) Ensure that all employees under their immediate supervision are aware of the hazards associated with confined spaces and the precautions necessary to control such hazards.

(2) Strictly enforce observance of the safety and health requirements of this chapter and the specific instructions issued by the CSPM (or a qualified assistant under the direction of the CSPM) on entry permits.

(3) Promptly report to cognizant management any unsafe conditions or procedures and, where warranted by the severity of such conditions, cease all operations until corrective action has been effected.

(4) Prohibit unauthorized entry into confined spaces under their control.

(5) Contact the CSPM/ACSPM if any work is to be done in a non-permit confined space that may change the designation. This may include introducing paints, solvents, welding gases, welding rods, or chipping rust which may release trapped vapors into the confined space.

(6) Ensure that a sufficient number of their employees are trained as QPs and are available to support their testing needs.

f. Fire Department (Code N36) shall provide rescue and emergency services for confined space emergencies. The rescue team shall be trained in the hazards of the confined spaces and be CPR and first aid certified. Additionally, an annual rescue drill shall be performed for each type of space likely to be encountered (i.e., pits, tanks, and vaults) under the direction of the CSPM or ACSPM. A written critique of the drill shall be retained for one year by the CSPM.

g. Contractors shall be responsible for providing their own confined space entry services. They must have an adequate permit program that meets the requirements of references (c) through (g) (R and shall ensure their personnel are safeguarded from accidents relating to any confined space work. All contractor confined space entries at NAS Whidbey Island must be coordinated with the Contracting Officer and/or CSPM. In the event testing for contract pre-award is required, the contractors' safety professional will perform the confined space evaluation and a copy of the tests shall be provided to the NASWI Safety Office.

NOTE: For all Navy Facility (NAVFAC) contracts the contracting (A officer shall be responsible for ensuring the contractors Confined Space Program meets all applicable standards in references (c) through (g).

NOTE: Entry into certain spaces by specifically trained telecommunication or transmission and distribution workers may be conducted according to the 29CFR 1910.268 and 29CFR 1910.269 respectively.

(1) The Contracting Officer shall govern the actions of contractor personnel to ensure safety compliance of all applicable standards. A briefing and debriefing with contractors to inform them of the history/dangers of the confined space and to review the adequacy of the contractors confined space program will be performed by the CSPM and the Contracting Officer.

(2) In all cases involving contractor operations aboard NASWI, the Contracting Officer shall inform the contractor that the contractor's confined space personnel be adequately qualified. All operations are to be conducted in accordance with references (b) and (g) in addition to all other statutory or regulatory requirements, since navy personnel, aircraft, and facilities may also be at risk. (R

(3) Where Navy and contractor personnel are to occupy the same space at the same time, the Navy CSPM/ACSPM and the appropriate contractor representative shall issue separate permits. The CSPM/ACSPM or QP shall inform the contractor of the Navy findings, and the contractor shall present his/her findings to the Navy CSPM/ACSPM or QP as appropriate. However, the contracting officer shall inform the contractor that the contractor retains legal obligation for the safety of contractor personnel.

(4) When changes occur in the location of a confined space or confined spaces are added or deleted to the facility, the contracting officer shall provide accurate and updated information to the contractor and the NASWI Safety Office.

(5) The contractor shall file the following information with the NAS Fire Department, prior to commencing work:

(a) The type of confined space to be entered. (R

(b) The geographic location of the confined space. (R

(c) The chemical, physical, biological and/or atmospheric hazards present. (R

(d) The name of the person issuing the entry permit. (R

(e) A complete list of attendants, entrants, and entry supervisors. (R

(f) The work to be conducted. (R

(g) Daily work start and quit times. (R

(h) Duration of the project. (R

(i) The means by which the Fire Department will be notified, (i.e., cell phone, radio, etc.). (R

NOTE: If communications are not established and maintained, then no confined space entry procedures may be initiated.

6. Basic Program Elements. The confined space entry program consists of six basic program elements.

a. Identification and Preliminary Evaluation. The CSPM will maintain a current inventory of all confined spaces. A copy of the inventory is available at the NASWI Public Works Office and the NASWI Safety Office.

b. Prevention Of Unauthorized Entry. All permit required spaces will be labeled with the words "danger: permit required confined space; do not enter." With the specific approval of the CSPM, another equally effective method of preventing entry into a confined space may be authorized (i.e., locks, special tools, welding a lid closed, training, etc.).

c. Comprehensive Hazard Evaluation

(1) Initial Atmospheric Testing. Prior to entry into a PRCS, the space shall be tested for oxygen content and the presence of toxic or flammable/explosive constituents. Initial atmospheric testing shall be performed from outside the space. Tests for oxygen content shall be performed first.

NOTE: See number (3) below, “Other Hazard Evaluation.”

(2) Periodic and Continuous Atmospheric Testing

(a) Continuous monitoring (testing at 15 minute or less intervals). Continuous monitoring should be conducted if conditions are expected to change while work is being performed to ensure safe conditions are being maintained. Results of this monitoring will be entered on the permit.

(b) Periodic monitoring (testing at an interval greater than 15 minutes). Periodic monitoring will be conducted as required by the CSPM to ensure conditions remain safe and stable and that the conditions of the permit have not changed.

(3) Other hazard evaluation. When entering a PRCS certain conditions exist besides oxygen deficiency, enrichment, or fire explosive hazards that may be hazardous. These conditions may include:

(a) Presence of toxic materials.

(b) Physical hazards such as slippery surfaces, conduits, protruding sharp objects or other obstructions, unstable ladders, machinery and electrical devices.

(c) Engulfment.

(d) Poor illumination.

(e) Vermin, rats, snakes, Hantavirus, etc.

(4) Only properly trained and certified employees may perform the initial testing for permit required confined space

entry and only certified personnel shall be allowed to enter a PRCS or be certified as attendants during the operation.

(5) Under no conditions shall anyone be allowed to enter a PRCS unless it has been authorized for entry.

(6) Pure oxygen shall never be used for venting in any confined space since high levels of oxygen could change the area to an extremely flammable condition.

(7) Issuance of Confined Space Entry Permits

(a) All PRCS areas on a job site shall be identified and an evaluation made before issuing a confined space permit. These spaces shall have signs posted (or another equally effective means) to notify employees that spaces are a permit-required confined space area.

(b) Written requests shall be made for the issuance of a confined space permit utilizing NASWI form 5100/92A, Appendix 2.

(c) Contractors working at the base must provide their own confined space entry protection. NASWI can only provide emergency services.

(d) The Confined Space Entry Permit shall be completed and posted at all entrances to the PRCS prior to entry and shall be updated if conditions change or work processes change. The permit is valid for a period not to exceed 8 hours. (R

(e) Employees shall stay within the guidelines of the permit that is issued.

d. Training and Qualifications

(1) Initial training in accordance with references (a) and (c) shall be provided to employees. Employees will not enter PRCS until trained.

(2) The CSPM/ACSPM will provide annual refresher training.

(3) Attendants, entrants, and supervisors will receive annual refresher training.

(4) QPs will be annually recertified in writing by the CSPM.

(5) QPs will give general awareness training annually to those employees performing work, such as inspections, who enter non-permit required confined spaces.

e. Retrieval Systems. All retrieval devices shall comply with reference (c), [29CFR 1910.146(k)(3)(i-ii)].

f. Program Evaluation. The Confined Space Program Manager shall instigate, with mutual agreement by all interested parties, a yearly evaluation of the confined space program by a team consisting of a Union Representative, the CSPM or the ACSPM, an Industrial Hygienist from the Naval Hospital Oak Harbor, a NASWI Fire Department Official, and a shop management representative. This evaluation shall include a review of all permits written for the period under consideration. Any changes which are deemed necessary will be taken for action by the CSPM and a written evaluation will be provided to the Commanding Officer. (R

NOTE: In addition to the above requirements, a review of entry operations shall be conducted when the employer has reason to believe that the measures taken under the permit space program may not protect the employees and revise the program to correct deficiencies found to exist before subsequent entries are authorized.

7. Requirements for Permit Required Confined Space Entry and Work (R

a. Authorized Entry Personnel. The duties of the entrant are as follows:

(1) Entrants are not to enter unless the atmosphere is proved to be safe and no hazardous conditions exist.

(2) If the atmosphere changes to a hazardous condition, entrants shall immediately leave the space.

(3) Entrants shall remain in communication with attendants at all times.

(4) Entrants shall wear authorized Personal Protective Equipment while performing duties.

(5) Entrants must know all hazards associated with the job, shall order evacuation when warning signs are recognized, and evacuate immediately when ordered to do so.

(6) A list of qualified entrants will be maintained by the CSPM.

b. Attendants. The duties of the attendants are as follows:

NOTE: Attendants shall have no additional duties that preclude them from having constant communication with the entrant or limit their ability to summon the NASWI Fire Department.

(1) One attendant (not the CSPM/ACSPM) must remain outside the permit space at all times during the operation.

(2) The Fire Department shall be notified in the event of an emergency. Notification shall be from an on-site hard-wired telephone, cell phone, or by radio contact.

NOTE: The type of communication to be utilized shall be agreed upon and established with the NASWI Fire Department prior to initiation of work. If communications are not established AND MAINTAINED, then NO confined space entry procedures may be initiated.

(3) Attendant must not allow unauthorized personnel to attempt rescues.

(4) Attendant must be familiar with the hazards that exist in the space and warn unauthorized personnel not to enter the space.

(5) Attendant shall be aware of possible behavioral effects of hazards to which entrants may be exposed to.

(6) Attendants shall know which entrants are in the space at all times.

(7) Attendants shall remain in position unless relieved by another qualified attendant.

(8) Attendants shall communicate with entrants as necessary to effectively monitor the operation within the confined space.

(9) Spaces will be monitored outside as well as inside during operations to ensure that safety inside the space is not compromised. For example, running heavy equipment outside a poorly ventilated space can expose people to carbon monoxide and reduce oxygen levels.

(10) All qualified entrants may act as Attendants with approval of their individual supervisor.

c. Entry Supervisors. The employee (may not necessarily be the entrant's supervisor and will not be the CSPM/ACSPM) who is qualified and is authorizing entry into a confined space is responsible for:

(1) Knowing the hazards that may be faced during entry.

(2) Understanding and following all the requirements listed on the entry permit.

(3) Verifying that the appropriate entries have been made on the permit, that all tests specified by the permit have been conducted and that all procedures and equipment specified by the permit are in place before endorsing the permit and allowing entry to begin.

NOTE: The supervisor must verify that the atmosphere was tested before entry and that the gas detection equipment specified on the permit is available.

(4) Terminating the entry and canceling the permit when required and recording on the permit the reason(s) for canceling the entry permit. Canceled permits must be turned in to the CSPM to be used in the annual evaluation of the confined space program.

(5) Verifying that rescue services are available and that the means for summoning them are operable.

(6) Removing unauthorized individuals who enter or attempt to enter the confined space during operations.

(7) Determining that entry operations remain consistent with the terms of the entry permit and that acceptable entry conditions are maintained.

(8) Signing the permit prior to personnel entry to ensure that he/she is aware of the entry requirements. Each relieving entry supervisor shall initial the permit to acknowledge that they understand the entry requirements.

d. Personal Protective Equipment (PPE). Personnel entering and/or working in a PRCS shall be provided with and required to utilize PPE appropriate to the operations and exposures encountered per reference (a),(c) and (f). The types of PPE shall be specified on the entry permit. Employees must be trained/qualified on the use of all PPE before the job begins. This includes respiratory protection, if so warranted.

e. Engineering Controls

(1) Ventilation. A PRCS shall be ventilated prior to entry or work to the degree necessary to reduce flammables and toxins to acceptable levels, and to provide proper oxygen content within the space. All venting shall be in accordance with reference (b).

(a) If oxygen is below 19.5% or the Parts Per Million (PPM) levels of hydrocarbons and/or toxins are above their Permissible Exposure Limit (PEL), no entry permit shall be authorized, and the person requesting the permit will be notified that the area cannot be entered until ventilated. Ventilation shall be applied to the area to correct the problem. If ventilation does not correct the problem, contact the CSPM/ACSPM. (R

(b) If PPM levels of hydrocarbons cannot be reduced to below 50 PPM (the Navy Environmental Health Center (NEHC) PEL for JP-8, JP-5, and Diesel Fuel Marine (DFM)) and entry is required, contact the CSPM to determine if respirators can be used.

(c) If oxygen is greater than 22% and/or the Lower Explosive Level (LEL) is greater than 10%, ventilation and a confined space permit are required. These types of conditions can be very unstable and result in a fire or explosion if not

ventilated properly. A high reading can indicate a failing gas meter or a possible oxygen leak into the space from welding equipment.

(d) If the concentration of Hydrogen Sulfide (H_2S)is greater than 10 PPM, ventilation is required. If ventilating does not reduce the levels below this Threshold Limit Value (TLV), no entry permit will be issued and the supervisor shall be notified.

NOTE: H_2S smells like rotten eggs. Within a VERY short time-frame, high levels can desensitize the nose to the point it can no longer be smelled. This can give the employee a false sense of security, thinking the hazard may no longer exist.

(e) If the concentration of Carbon Monoxide(CO) is greater than 25 PPM, ventilation is required. If ventilating does not reduce the level below 25 PPM, no entry is allowed. Contact the CSPM/ACSPM for guidance.

NOTE: The atmospheric hazards listed above represent the bulk of the atmospheric hazards which are likely to be encountered aboard NASWI, but are not all inclusive. If any other known or suspected atmospheric hazard exists which is considered toxic and/or hazardous by current standards, then ventilation shall be applied in accordance with reference (b).

(2) Lockout/Tagout. All mechanical and electrical equipment in a PRCS which could present a hazard must be isolated. This includes locking open electrical breakers or disconnects, removing fuses and blocking fluid pipelines. Pipelines which could inadvertently introduce a hazard into the space (such as fuel pipelines) must have double valve isolation or be physically blocked by a blind flange or installed blind (fry pan).

(3) Inerting and Pressing Up. Any inerting or pressing up of spaces in order to do maintenance will be strictly controlled by the CSPM/ACSPM in accordance with reference (b).

f. Preparation of Spaces. Before beginning a job if any hazardous materials are going to be used, the MSDS must first be reviewed and evaluated to ensure that any chemicals added to this area will not change the atmosphere into a hazardous area. The QP who issues the permit must check the MSDS and use the information obtained to specify entry conditions and PPE. Additionally, each entrant will review the applicable MSDS prior to going into the space.

8. Precautions for Specific Operations

a. Hot work. All hot work shall be performed in accordance with reference (b). No hot work can be completed unless a hot work permit is issued by the Fire Department. Hot work may be

performed only after being certified “Safe for Hotwork” by the CSPM/ACSPM or the QP.

b. Underground Fuel Storage Tanks. These are PRCS. Personnel are prohibited from entering any fuel storage tank until it has been tested and evaluated by the CSPM/ACSPM or QP. Entrants are cautioned, these spaces could contain low oxygen, elevated hydrocarbons, or a flammable atmosphere. Additionally, the descent is approximately 12 feet by ladder and it could be a slip/fall hazard as well.

c. Sewer Systems (Sanitary, Storm, Pump Lift Stations). All sewers are considered PRCS. Personnel are prohibited from entering any sewer system until it has been tested and evaluated by the CSPM/ACSPM. Atmospheres in a sewer can be unpredictable. Without warning the air may become lethally hazardous (toxic, flammable, or explosive) from causes beyond the control of the entrant or employer.

d. Communication Manholes. These types of spaces may or may not be PRCS. A communication manhole carries telephone cable, fiber cables, etc. These are low voltage systems, less than 48v and VERY low amperage, and would present no electrocution hazard. These spaces may be permit required depending upon the atmosphere or some recognized safety and/or health hazard. If you have the need to enter a space of this type contact the safety office for guidance.

NOTE: Specially trained telecommunication workers (i.e., AT&T and US WEST) may enter these types of spaces per reference (d).

e. Steam Pits. Are not normally PRCS. On occasion steam pits can have an abundance of water in the bottoms of the pit. If you detect any fluid on the deck, a hissing sound coming from the valves or the ladder access is in poor repair do not enter the pit, call the CSPM for guidance.

f. Electrical Manholes. These are PRCS. A typical space contains lines energized in the range of 12.47kV pp (Phase to Phase) or 7.2kV pg (Phase to Ground) A manhole can also be damp or contain standing water making these spaces extremely dangerous.

NOTE: Specially trained transmission and distribution workers may enter these types of spaces as outlined in reference (e).

g. Miscellaneous. All other types of spaces not specifically mentioned in this instruction shall be tested and evaluated by the CSPM/ACSPM prior to entry or work. (Examples: attics, crawl spaces under buildings, dumpsters, drums, barrels, tanks, etc.)

9. Emergency Rescue Procedures

a. The rescue team for confined space entry is the NASWI Fire Department. The Duty Fire Captain will assign personnel to

the rescue team as needed. The rescue team shall meet the requirements of reference (c).

b. In the event of an emergency, employees shall dial 911 or contact the Fire Department at extension 7-3333. The Fire Department will respond using their current SOP.

10. Record Keeping. Confined space permits shall be kept on file by CSPM/ACSPM for a minimum of one year. A copy of each confined space permit must be sent to the Safety Office, (NAS N45) by the person who issues the permit.

11. Equipment. The CSPM/ACSPM shall ensure appropriate instruments are available to perform the atmospheric testing. These instruments shall be suitable for the task. The CSPM/ACSPM shall ensure that such equipment is properly used, maintained and calibrated per the manufacturer’s instructions. The CSPM/ACSPM shall maintain records of the checks for a period of one year.

CHAPTER 11 REFERENCES

(a) OPNAVINST 5100.23E,, Navy Occupational Safety and Health Program Manual.

(b) NAVSEA Technical Manual S6470-AA-SAF-010, Naval Systems Sea Command Gas Free Engineering Program.

(c) Title 29, Code of Federal Regulations, Part 1910.146, Permit-Required Confined Spaces.

(d) Title 29, Code of Federal Regulations, Part 1910.268, Telecommunications.

(e) Title 29, Code of Federal Regulations, Part 1910.269, Electric power generation, transmission, and Distribution.

(f) Title 29, Code of Federal Regulations, Part 1926.21, Safety and Health Regulations for Construction.

(g) Army Corps of Engineers Safety and Health Requirements Manual, Section 06.1, Confined Space.